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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/585,339
Filing Date: June 02, 2000
Appellant(s): MIAHIMA ET AL.

Edward J. Wise
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 20 April 2006
appealing from the Office action mailed 21 September 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

| | | |
|-----------|------------|---------|
| 5,757,388 | STEPHENSON | 5-1998 |
| 5,884,086 | AMONI | 3-1999 |
| 5,694,226 | YOKOYAMA | 12-1997 |
| 5,805,780 | KAWAI | 9-1998 |
| 4,532,418 | MEESE | 7-1985 |

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086).

Regarding claim 1: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) transmitting image data is to be connected (column 2, lines 40-44 of Stephenson). An electronic camera (figure 1 of Stephenson) is connected to a printer (figure 2 of Stephenson) using a passive (figure 1(22) of

Art Unit: 2625

Stephenson) and an active socket connection (figure 1(20) and column 2, lines 40-43 of Stephenson).

Said image forming apparatus comprises a detecting unit (figure 2(30(portion)) of Stephenson) for detecting whether the external device has been connected to said image forming apparatus (column 4, lines 13-20 of Stephenson), the detecting unit including a connector (figure 2(24) of Stephenson) configured to receive a plug of a cable attached to the external device (column 2, lines 54-58 of Stephenson); and an interface controller (figure 2(26) of Stephenson) connected to the connector (as can clearly be seen in figure 2 of Stephenson), the interface controller outputting a first logical level signal when the plug is inserted into the connector and outputting a second logical level signal when the plug is not inserted into the connector (column 2, lines 60-63 of Stephenson). In order to establish a physical and electrical connection between the camera and the printer (column 2, lines 54-58 of Stephenson), a plug of a some sort of cable must be received. Otherwise, there can be no electrical connection. In order to selectively secure and release the ink jet printer under the control of the printer electronics (column 2, lines 60-63 of Stephenson), two separate logical level signals are inherent, a first logical level signal in which the plug is inserted into the connector, thus securing

Art Unit: 2625

the printer to the camera, and a second logical level signal when the plug is not inserted into the connector, thus releasing the printer from the camera.

Said image forming device further comprises a printing unit (figure 4 of Stephenson) and a control unit (figure 2(30 (portion)) of Stephenson) for controlling, in response to the first logical level signal output by the interface controller (column 3, lines 41-49 of Stephenson), said printing unit so as to prepare for image forming according to the image data from the external device (column 3, line 65 to column 4, line 6 of Stephenson). The portion of the printing electronics (figure 2 (30) of Stephenson) that performs the functions of the control unit is the control unit and the portion of said printing electronics that performs the functions of the detecting unit is the detecting unit.

Stephenson further discloses that signal data which signals the start of transmission is sent from the external device to the image forming apparatus via the connector (column 4, lines 4-6 of Stephenson), and thus also via the cable connected to said connector (column 2, lines 54-58 of Stephenson); and transmitting image data from the external device to the image forming apparatus (column 3, lines 56-62 of Stephenson).

Stephenson does not disclose expressly that said image data is sent from said external device to said image forming apparatus via said cable.

Amoni discloses transmitting digital data directly through the use of a directly connected cable (figure 7 and column 3, lines 44-48 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the enhanced USB connector taught by Amoni in place of the active latch taught by Stephenson and transmit said image data from said external device to said image forming apparatus via said USB cable. The motivation for doing so would have been to be able to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson to obtain the invention as specified in claim 1.

Regarding claim 2: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) comprising a detecting unit (figure 2(30(portion)) of Stephenson) for detecting an external

Art Unit: 2625

device (column 4, lines 13-20 of Stephenson), the external device transmitting image data (column 4, lines 56-60 of Stephenson), the detecting unit including a connector (figure 2 (24) of Stephenson) configured to receive a plug of a cable attached to the external device (column 2, lines 54-58 of Stephenson); and an interface controller (figure 2(26) of Stephenson) connected to the connector (as can clearly be seen in figure 2 of Stephenson), the interface controller outputting a first logical level signal when the plug is inserted into the connector and outputting a second logical level signal when the plug is not inserted into the connector (column 2, lines 60-63 of Stephenson). In order to establish a physical and electrical connection between the camera and the printer (column 2, lines 54-58 of Stephenson), a plug of a some sort of cable must be received. Otherwise, there can be no electrical connection. In order to selectively secure and release the ink jet printer under the control of the printer electronics (column 2, lines 60-63 of Stephenson), two separate logical level signals are inherent, a first logical level signal in which the plug is inserted into the connector, thus securing the printer to the camera, and a second logical level signal when the plug is not inserted into the connector, thus releasing the printer from the camera.

Art Unit: 2625

Said image forming apparatus further comprises a power supplying unit for supplying power. Said power supplying unit is inherent in the design of the device since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Said image forming apparatus further comprises a printing unit (figure 4 of Stephenson) that is driven by the power from the power supplying unit and forms an image (column 4, lines 61-64 and column 5, lines 1-4 of Stephenson) according to the image data from the external device (column 4, line 66 to column 5, line 7 of Stephenson). It is inherent that said printing unit is driven by power from a power supplying unit, since no meaningful operation would otherwise be possible.

Stephenson discloses that said image forming apparatus comprises printer electronics (figure 2(30) of Stephenson), a portion of which is used as the detecting unit discussed above, and a portion of which controls other aspects of the device operation (column 4, lines 13-21 of Stephenson). The control unit is the portion of the printer electronics that performs the functions of said control unit. Said control unit controls the power supplying to the printing unit by said power supplying unit (column 3, lines 45-53 of Stephenson) according to whether the interface controller outputs the first logical level signal

Art Unit: 2625

or the second logical level signal (column 2, lines 60-64 of Stephenson). The power supply is controlled, and thus the printer is able to print or not print based on the readiness condition of the printer (column 3, lines 45-53 of Stephenson), which includes whether (first logical level) or not (second logical level) the printer and the camera are secured (column 2, lines 60-64 of Stephenson).

Stephenson further discloses that signal data which signals the start of transmission is sent from the external device to the image forming apparatus via the connector (column 4, lines 4-6 of Stephenson), and thus also via the cable connected to said connector (column 2, lines 54-58 of Stephenson); and transmitting image data from the external device to the image forming apparatus (column 3, lines 56-62 of Stephenson).

Stephenson does not disclose expressly that the image data is also sent from the external device to the image forming apparatus via the cable.

Amoni discloses transmitting digital data directly through the use of a directly connected cable (figure 7 and column 3, lines 44-48 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the

Art Unit: 2625

invention, it would have been obvious to a person of ordinary skill in the art to use the enhanced USB connector taught by Amoni in place of the active latch taught by Stephenson and transmit said image data from said external device to said image forming apparatus via said USB cable. The motivation for doing so would have been to be able to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson to obtain the invention as specified in claim 2.

Claims 4-9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086) and Yokoyama (US Patent 5,694,226) .

Regarding claim 4: Stephenson discloses that the printing unit (figure 4 of Stephenson) includes an image forming unit (figure 2(12) and column 3, lines 33-36 of Stephenson) for forming the image on a sheet (column 2, line 65 to column 3, line 10 of Stephenson) according to the image data (column 3, lines 21-25 of Stephenson).

Stephenson in view of Amoni does not disclose expressly that said printing unit includes a fixing unit for fixing the image on the sheet by applying heat.

Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely the control of peripherally connected electronic devices, such as printers and digital cameras. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. The motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 4.

Regarding claim 6: Stephenson in view of Amoni does not disclose expressly that the control unit controls an amount of the power supplied to the fixing unit so as to keep the fixing unit at a first temperature that is lower than a second

Art Unit: 2625

temperature for fixing the image on the sheet when the interface controller outputs the second logical level signal, and at the second temperature when the interface controller outputs the first logical level signal.

Yokoyama discloses a control unit (figure 1(9,12,13) of Yokoyama) that controls the amount of power supplied to the fixing unit (figure 1(7) and column 3, lines 7-18 and lines 28-32 of Yokoyama). The heater control unit (figure 1(9) of Yokoyama), the heater-on managing unit (figure 1(12) of Yokoyama) and the heater-off managing unit (figure 1(13) of Yokoyama) comprises a control unit that controls said fixing unit since all three units act as a single unit for the purpose of controlling the temperature of the heater (figure 1(7) of Yokoyama). The amount of power supplied to said fixing unit is changed based upon receipt of an image signal (column 3, lines 26-37 of Yokoyama), such as a camera. Said fixing unit is kept on if image signals are received repeatedly (column 3, lines 38-43 of Yokoyama). Said heater-off and heater-on managing units are enabled based upon a signal relating to the time (column 2, lines 61-65 and column 3, lines 19-25 of Yokoyama). If the time signal enables said heater-off managing unit, then the power to said fixing unit is turned off, thus keeping said fixing unit at a lower temperature (column 3, lines 19-25 of Yokoyama), unless

Art Unit: 2625

image data is received for printing (column 3, lines 26-32 of Yokoyama). If the time signal enables said heater-on managing unit, then said fixing unit is maintained at a pre-heat temperature until image data is received (column 3, lines 1-9 of Yokoyama). When image data is received, said fixing unit is maintained at the temperature needed to output the image (column 3, lines 9-14 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely the control of peripherally connected electronic devices, such as printers and digital cameras. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to control the level of power sent to the fixing unit by using a control unit. Said control unit would control the heater-on and heater-off managing units based on whether or not the printer was secured to the camera, and therefore whether or not the first logical level or second logical level was output by said interface controller, as taught in Stephenson, instead of a signal indicating time, as taught in Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in

Art Unit: 2625

use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device is attached to the image forming apparatus, and the interface controller therefore outputs the first logical level signal. Therefore, it would have been obvious to use the detection signal from said detecting unit rather than the time signals. The control unit would turn on the heater-on managing unit when the signal indicates that said external device is connected and turn on the heater-off managing unit when the signal indicates said external device is not connected. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by adjusting the power to the fixing unit only when the external device is connected. Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 6.

Regarding claim 5: The arguments regarding claim 6 are incorporated herein. The power is changed based on the detection result since the temperature is changed from either the first temperature to the second temperature, or from the second temperature to the first temperature, depending upon the detection result.

Regarding claim 7: The arguments regarding claim 6 are incorporated herein. Since the fixing unit is part of the printing unit, then controlling the amount of power supplied to said fixing unit controls the amount of power supplied to the printer.

Regarding claim 8: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) transmitting image data is to be connected (column 2, lines 40-44 of Stephenson), comprising a detecting unit (figure 2(30(portion)) of Stephenson) for detecting whether the external device has been connected to said image forming apparatus (column 4, lines 13-20 of Stephenson), the detecting unit including a connector (figure 2(24) of Stephenson) configured to receive a plug of a cable attached to the external device (column 2, lines 54-58 of Stephenson); and an interface controller (figure 2(26) of Stephenson) connected to the connector (as can clearly be seen in figure 2 of Stephenson), the interface controller outputting a first logical level signal when the plug is inserted into the connector and outputting a second logical level signal when the plug is not inserted into the connector (column 2, lines 60-63 of Stephenson). In order to establish a physical and electrical connection between the camera and the printer (column 2, lines

Art Unit: 2625

54-58 of Stephenson), a plug of a some sort of cable must be received. Otherwise, there can be no electrical connection. In order to selectively secure and release the ink jet printer under the control of the printer electronics (column 2, lines 60-63 of Stephenson), two separate logical level signals are inherent, a first logical level signal in which the plug is inserted into the connector, thus securing the printer to the camera, and a second logical level signal when the plug is not inserted into the connector, thus releasing the printer from the camera.

Said image forming device further comprises an image forming unit (figure 2(12) of Stephenson) for forming an image on a sheet (column 2, line 65 to column 3, line 10 of Stephenson) according to the image data that has been transmitted from the external device (column 3, lines 21-25 of Stephenson); and a control unit (figure 2(30(portion)) of Stephenson) for controlling said printing unit so as to prepare for image forming according to the image data from the external device (column 3, line 65 to column 4, line 6 of Stephenson), according to whether the interface controller outputs the first logical level signal or the second logical level signal (column 3, lines 42-49 of Stephenson). The portion of the printing electronics (figure 2 (30) of Stephenson) that performs the

Art Unit: 2625

functions of the control unit is the control unit and the portion of said printing electronics that performs the functions of the detecting unit is the detecting unit.

Stephenson further discloses that signal data which signals the start of transmission is sent from the external device to the image forming apparatus via the connector (column 4, lines 4-6 of Stephenson), and thus also via the cable connected to said connector (column 2, lines 54-58 of Stephenson); and transmitting image data from the external device to the image forming apparatus (column 3, lines 56-62 of Stephenson).

Stephenson does not disclose expressly that the image data is also sent from the external device to the image forming apparatus via the cable; that said image forming device further comprises a fixing unit for fixing the image on the sheet by applying heat, wherein the fixing unit is an electric heater; and that said control unit controls power supplying to the fixing unit.

Amoni discloses transmitting digital data directly through the use of a directly connected cable (figure 7 and column 3, lines 44-48 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the

Art Unit: 2625

invention, it would have been obvious to a person of ordinary skill in the art to use the enhanced USB connector taught by Amoni in place of the active latch taught by Stephenson and transmit said image data from said external device to said image forming apparatus via said USB cable. The motivation for doing so would have been to be able to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly that said image forming device further comprises a fixing unit for fixing the image on the sheet by applying heat, wherein the fixing unit is an electric heater; and that said control unit controls power supplying to the fixing unit.

Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art

Art Unit: 2625

to use a printer that fixes the image on the sheet by applying heat. Since said control unit controls the power supplied to the printer based on whether the interface controller outputs the first logical level signal or the second logical level signal, said interface controller would therefore likewise control said fixing unit. The motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 8.

Regarding claim 9: Stephenson discloses that the external device (figure 1 of Stephenson) is a camera for taking a picture (column 2, lines 28-30 of Stephenson) and generating the image data (column 2, lines 32-37 of Stephenson), said external device including a connecting unit (figure 2(24a) of Stephenson) that is to be connected to the connector (figure 1(20) and column 2, lines 56-58 of Stephenson). The matching detail (figure 2(24a) of Stephenson) is designed to be inserted into the connector of said external device, allowing said external device to be attached to the image forming apparatus (figure 2 of Stephenson) by said matching unit being connected to said connector.

Art Unit: 2625

Therefore, the matching detail in the external device forms what is essentially the connecting unit.

Regarding claim 11: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) transmitting image data is to be connected (column 2, lines 40-44 of Stephenson), comprising an external device detecting unit (figure 2(30(portion)) of Stephenson) for detecting whether the external device has been connected to said image forming apparatus (column 4, lines 13-20 of Stephenson), the external device detecting unit including a connector (figure 2(24) of Stephenson) configured to receive a plug of a cable attached to the external device (column 2, lines 54-58 of Stephenson); and an interface controller (figure 2(26) of Stephenson) connected to the connector (as can clearly be seen in figure 2 of Stephenson), the interface controller outputting a first logical level signal when the plug is inserted into the connector and outputting a second logical level signal when the plug is not inserted into the connector (column 2, lines 60-63 of Stephenson). In order to establish a physical and electrical connection between the camera and the printer (column 2, lines 54-58 of Stephenson), a plug of a some sort of cable must be received. Otherwise, there can be no electrical connection. In order to selectively secure and

Art Unit: 2625

release the ink jet printer under the control of the printer electronics (column 2, lines 60-63 of Stephenson), two separate logical level signals are inherent, a first logical level signal in which the plug is inserted into the connector, thus securing the printer to the camera, and a second logical level signal when the plug is not inserted into the connector, thus releasing the printer from the camera.

Stephenson further discloses that signal data which signals the start of transmission is sent from the external device to the image forming apparatus via the connector (column 4, lines 4-6 of Stephenson), and thus also via the cable connected to said connector (column 2, lines 54-58 of Stephenson); and transmitting image data from the external device to the image forming apparatus (column 3, lines 56-62 of Stephenson).

Stephenson does not disclose expressly that the image data is also sent from the external device to the image forming apparatus via the cable; that said image forming apparatus further comprises a fixing unit for fixing an image that has been formed on a sheet by applying heat; a switching unit for putting the fixing unit into a fixing mode, in which the fixing unit is kept at a first temperature for fixing the image on the sheet, and a standby mode, in which the fixing unit stands by and a temperature of the fixing unit is lower than the first

Art Unit: 2625

temperature; and a control unit for controlling the switching unit so as to switch the fixing unit from the standby mode to the fixing mode when the interface controller outputs the first logical level signal.

Amoni discloses transmitting digital data directly through the use of a directly connected cable (figure 7 and column 3, lines 44-48 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the enhanced USB connector taught by Amoni in place of the active latch taught by Stephenson and transmit said image data from said external device to said image forming apparatus via said USB cable. The motivation for doing so would have been to be able to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly that said image forming apparatus further comprises a fixing unit for fixing an image that has been formed on a sheet by

Art Unit: 2625

applying heat; a switching unit for putting the fixing unit into a fixing mode, in which the fixing unit is kept at a first temperature for fixing the image on the sheet, and a standby mode, in which the fixing unit stands by and a temperature of the fixing unit is lower than the first temperature; and a control unit for controlling the switching unit so as to switch the fixing unit from the standby mode to the fixing mode when the interface controller outputs the first logical level signal.

Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama); and a switching unit (figure 1(9) of Yokoyama) that puts said fixing unit into a fixing mode, in which said fixing unit is kept at a first temperature for fixing the image on the sheet (column 3, lines 9-14 and lines 26-32 of Yokoyama), and a standby mode, in which the fixing unit stands by and a temperature of the fixing unit is lower than the first temperature (column 3, lines 7-9 and lines 19-25 of Yokoyama). If image data is received, then the fixing unit is provided power so that it can sustain a temperature suitable for fixing the image on the image recording medium (column 3, lines 9-12 and lines 26-32 of Yokoyama). If image data is not received, then a lower temperature is achieved for said fixing unit. Said

Art Unit: 2625

fixing unit is either maintained at a preheat temperature level while the image forming device waits for image data (column 3, lines 7-9 of Yokoyama), or said fixing unit attains room temperature while the image forming device waits for image data (column 3, lines 19-25 of Yokoyama). The particular standby mode depends on whether the heater-on managing unit (figure 1 (12) of Yokoyama) portion of the control unit (figure 1(12,13) of Yokoyama) or the heater-off managing unit (figure 1(13) of Yokoyama) portion of the control unit is functioning.

Yokoyama further discloses a control unit (figure 1(12,13) of Yokoyama) for controlling said switching unit so as to switch said fixing unit from the standby mode to the fixing mode when an image signal is detected (column 3, lines 7-12 and lines 22-32 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. The motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). It would also have been obvious

Art Unit: 2625

to a person of ordinary skill in the art at the time of the invention to control the level of power sent to the fixing unit by using a switching unit to switch between standby and fixing mode. Furthermore, a control unit would be needed control said switching unit by using the output signal of the interface controller, as taught by Stephenson, instead of a signal indicating time, as taught by Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device is attached to the image forming apparatus, and thus the first logical signal level is output by said interface controller. Therefore, it would have been obvious to use the output signal from said interface controller unit rather than the time signals. The control unit would turn on the heater-on managing unit portion of said control unit when the signal indicates that said external device is connected and turn on the heater-off managing unit portion of said control unit when the signal indicates said external device is not

Art Unit: 2625

connected. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by adjusting the power to the fixing unit so that the heater-on managing unit portion is activated only when the external device is connected. Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 11.

Further regarding claim 12: Yokoyama discloses that the switching unit (figure 1(9) of Yokoyama) switches between standby (column 3, lines 7-9 of Yokoyama) and image fixing mode (column 3, lines 9-14 of Yokoyama). Switching between the two modes requires the interruption of the current to the fixing unit (figure 1(7) and column 3, lines 15-18 of Yokoyama). After the image signal has been processed by the image forming apparatus, said switching unit returns to standby. The electrical power supply is interrupted since it is either lowered in order to keep the temperature of said fixing unit lower (column 3, lines 15-18 of Yokoyama), or said fixing unit is shut off completely (column 3, lines 28-35 of Yokoyama).

Further regarding claim 13: Yokoyama discloses that the switching unit (figure 1(9) of Yokoyama) keeps the fixing unit (figure 1(7) of Yokoyama) at a second temperature, which is lower than the first temperature, in a standby mode (column 3,

Art Unit: 2625

lines 7-14 and lines 19-32 of Yokoyama). If image data is received, then the fixing unit is provided power so that it can sustain a temperature suitable for fixing the image on the image recording medium (column 3, lines 9-12 and lines 26-32 of Yokoyama). If image data is not received, then a lower temperature is achieved for said fixing unit. Said fixing unit is either maintained at a preheat temperature level while the image forming device waits for image data (column 3, lines 7-9 of Yokoyama), or said fixing unit attains room temperature while the image forming device waits for image data (column 3, lines 19-25 of Yokoyama). The particular standby mode depends on whether the heater-on managing unit (figure 1(12) of Yokoyama) portion of the control unit (figure 1(12,13) of Yokoyama) or the heater-off managing unit (figure 1(13) of Yokoyama) portion of the control unit is functioning.

Regarding claim 14: Stephenson discloses that said image forming apparatus comprises a judging unit (figure 2(30 (portion)) of Stephenson) for judging whether an image forming operation has been completed (column 4, lines 13-21 of Stephenson). The portion of the printer electronics (figure 2 (30) of Stephenson) that performs the functions of the judging unit corresponds to the judging unit.

Stephenson does not disclose expressly that the control unit controls the switching unit so as to switch the fixing unit from the fixing mode to the standby mode when the interface controller outputs the second logical level signal and when the judging unit judges that the image forming operation has been completed.

Yokoyama discloses a control unit (figure 1(12,13) of Yokoyama) for controlling the switching unit (figure 1(9) of Yokoyama) so as to switch said fixing unit from the fixing mode to the standby mode when the image signal is completed (column 3, lines 15-18 and lines 33-37 of Yokoyama). Yokoyama further discloses that said control unit controls said switching unit by controlling the level of electrical power provided based on a signal related to the time (column 3, lines 1-9 and lines 19-25 of Yokoyama). The signal indicating image completion is used in conjunction with the signal relating to the time to control the temperature of the fixing unit (column 3, lines 1-50 of Yokoyama).

Stephenson and Yokoyama are combinable because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch said fixing unit from fixing mode to standby mode when said

Art Unit: 2625

fixing unit is not actively needed. The signal indicating image completion, as taught in Yokoyama, is used in the control of the temperature in conjunction with output signal of the interface controller, as taught by Stephenson, instead of the signal related to time, as taught by Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device is attached to the image forming apparatus, and thus when the first logical level signal is output. Therefore, it would have been obvious to use the output signal (second logical level signal) from said interface controller, rather than the time signals, in conjunction with the image completion signal for controlling when said fixing unit switches from the fixing mode to the standby mode. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by turning on the power to the fixing unit only when the external device is connected. Therefore, it would have been obvious to

Art Unit: 2625

combine Yokoyama with Stephenson to obtain the invention as specified in claim 14.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Yokoyama (US Patent 5,694,226), and Kawai (US Patent 5,805,780).

Regarding claim 10: Stephenson in view of Amoni and Yokoyama does not disclose expressly that said image forming apparatus further comprises a fee-charging unit for charging a user a fee for forming an image.

Kawai discloses an image forming apparatus (figure 1 of Kawai) that comprises a fee-charging unit (figure 1(8) and column 5, lines 62-65 of Kawai) for charging a user a fee for forming an image (column 5, line 62 to column 6, line 5 of Kawai).

Stephenson in view of Amoni and Yokoyama is combinable with Kawai because they are from the same field of endeavor, namely the printing of image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an automatic money handling device that collects payment for printing images. The motivation for doing so would have been to be able to automatically collect payment for the

Art Unit: 2625

printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni and Yokoyama to obtain the invention as specified in claim 10.

Claims 15-16, 18-19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Kawai (US Patent 5,805,780), Meese (US Patent 4,532,418), and In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Regarding claim 15: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) comprising a printing unit (figure 4 and column 4, lines 61-64 of Stephenson); and an interface (figure 2(24,24a,28,32) of Stephenson) for connecting the external device (figure 1 of Stephenson) to said image forming apparatus (column 2, lines 50-64 and column 3, lines 25-32 of Stephenson), wherein the image data from the external device is received via the interface (column 3, lines 33-41 of Stephenson); and a control unit (figure 2(30) of Stephenson) that has the printing unit form an image according to the image data from the external device that has been received via the interface (column 3, lines 44-53 of Stephenson).

Stephenson does not mention specifically that said image forming apparatus further comprises a power supplying unit for supplying power. However, said power supplying unit is inherent in the design of the device since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Stephenson does not disclose expressly that said power supplying unit supplies power to an external device transmitting image data; that the power is supplied to the external device via the interface; a judging unit for judging whether a charge is to be collected; a control unit for controlling power supplying by the power supplying unit and the image forming by the printing unit according to a judging result from the judging unit; and a charge collecting unit for collecting a charge, separate from the charge for the image forming, for the image forming and a charge for an amount of power that has been supplied to the external device.

Amoni discloses that power is supplied to an external device (column 2, lines 32-39 of Amoni) via the interface (column 2, lines 36-39 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the

Art Unit: 2625

invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device and the image forming device. The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly a judging unit for judging whether a charge is to be collected; a control unit for controlling power supplying by the power supplying unit and the image forming by the printing unit according to a judging result from the judging unit; and a charge collecting unit for collecting a charge for the image forming and a charge, separate from the charge for the image forming, for an amount of power that has been supplied to the external device.

Kawai discloses a judging unit (figure 1(8) and column 5, lines 54-55 of Kawai) for judging whether a charge is to be collected (column 5, lines 62-67 of Kawai); and a control unit (figure 1(7) of Kawai) for controlling the power supplying by a

Art Unit: 2625

power supplying unit (figure 1(10) of Kawai) and image forming by a printing unit (figure 1(9) and column 5, lines 55-56 of Kawai) according to a judging result by the judging unit (column 5, lines 65-67 and column 6, lines 6-7 of Kawai). Since said power supplying unit operates to feed power to various components (column 6, lines 6-7 of Kawai), said power supplying unit is controlled by the control unit.

Kawai further discloses a charge collecting unit (figure 1 (8) and column 5, lines 54-55 of Kawai) for collecting a charge for the operation of the image forming apparatus (column 5, line 62 to column 6, line 7; and column 7, lines 27-29 of Kawai). The operation of the apparatus includes both forming the image (column 5, line 62 to column 6, line 5; and column 7, lines 27-29 of Kawai) and supplying the power to operate the necessary components (column 6, lines 6-7 of Kawai). Furthermore, the charge collecting unit (figure 1(8) and column 5, lines 54-55 of Kawai) performs the function of a judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has given the proper fee to said money handling unit (column 5, lines 62-65 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the

Art Unit: 2625

control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image and the power supply that is needed to deliver power to the necessary components required to form the image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not expressly disclose that the charge collecting unit and the judging unit are separate units; and that said charge for an amount of power that has been supplied to the external device is separate from the charge for the image forming.

Meese discloses a handling unit that collects payment for the supplying of electrical power (column 2, lines 9-15 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from similar problem solving areas, namely the automated collecting of payments for providing services. At the time of the invention, it would have been

Art Unit: 2625

obvious to a person of ordinary skill in the art to include a separate handling unit for handling money so that the additional charge for the amount of electrical power that is supplied to an external device can be collected, as taught by Meese; and have said control unit taught by Kawai allow the purchasing of electrical power, if there is sufficient money paid to the handling unit. The motivation for doing so would have been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai.

Stephenson in view of Amoni, Kawai and Meese does not expressly disclose that the charge collecting unit and the judging unit are separate units. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the charge collecting unit and the judging unit into one integrated unit since *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) has held that it is an obvious design choice to make components integral if doing so does not create any useful and novel result. Therefore, it would have been obvious to combine the charge collecting unit

Art Unit: 2625

and the judging unit into one integrated unit, and thus obtain the invention as disclosed in claim 15.

Further regarding claim 16: Kawai discloses that the control unit (figure 1(7) of Kawai) has the printing unit (figure 1(9) and column 5, lines 55-56 of Kawai) form the image and has the power supplying unit (figure 1(10) of Kawai) supply the power when the judging unit (figure 1(8) and column 5, lines 54-55 of Kawai) judges that the charge is to be collected (column 5, lines 65-67; column 6, lines 6-7; and column 19, lines 4-7 and lines 23-26 of Kawai). When the start signal is given, the controller (figure 1(7) of Kawai) operates the printer (figure 1(9) and column 19, lines 23-26 of Kawai) for the purpose of printing out an image based on received image data (column 19, lines 4-6 of Kawai). Said start signal also causes the controller (figure 1(7) of Kawai) to control said power supplying unit since said power supplying unit is required to feed power to the components that are necessary to form the image (column 6, lines 6-7 of Kawai).

Further regarding claim 18: Kawai discloses that the charge collecting unit includes a handling unit (figure 1(8) and column 5, lines 54-55 of Kawai). Money of some form is input into the money handling machine (column 5, lines 62-65 of Kawai). Said handling unit collects the proper fee for the

Art Unit: 2625

operation of the overall apparatus taught by Kawai (column 5, lines 62-63 of Kawai). While the proper fee is being collected in the handling unit, said handling unit performs the function of a judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has completed inserting the proper fee, thus starting the operation of aspects of the overall apparatus taught by Kawai (column 5, lines 62-67 of Kawai).

Regarding claim 19: Stephenson in view of Amoni does not disclose expressly that the handling unit includes first and second handling units; and that the control unit permits the image forming when money has been input into the first handling unit and permits the power supplying when money has been input into the second handling unit.

Kawai discloses a first handling unit (figure 1(8) and column 5, lines 54-55 of Kawai). Money of some form is input into said money handling machine (column 5, lines 62-65 of Kawai). Said money handling machine collects the proper fee for the operation of the overall apparatus taught by Kawai (column 5, lines 62-63 of Kawai).

Kawai further discloses a control unit (figure 1(7) of Kawai) that permits the forming of an image when the appropriate

Art Unit: 2625

fee has been paid (column 5, line 62 to column 6, line 7 of Kawai) to said first handling unit.

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include in a unit the functions necessary to collect monetary charges for both the formation of an image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly a second handling unit that handles money input for the purpose of purchasing electrical power; and that the controlling unit permits power supplying when money has been put into said second handling unit.

Meese discloses a handling unit that collects payment for the supplying of electrical power (column 1, lines 39-43 of Meese).

Stephenson in view of Amoni and Kawai and *In re Larson* is combinable with Meese because they are from similar problem

Art Unit: 2625

solving areas, namely the automated collecting of payments for providing services. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a second handling unit for handling money so that the additional charge for the amount of electrical power that is supplied to an external device can be collected, as taught by Meese; and have said control unit taught by Kawai allow the purchasing of electrical power, if there is sufficient money paid to the second handling unit. The motivation for doing so would have been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 19.

Regarding claim 23: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) comprising a printing unit (figure 4 and column 4, lines 61-64 of Stephenson); and an interface (figure 2(24,24a,28,32) of Stephenson) for connecting the external device (figure 1 of Stephenson) to said image forming apparatus (column 2, lines 50-64 and column 3, lines 25-32 of Stephenson), wherein the image data from the external device is received via the interface (column 3, lines 33-41 of

Art Unit: 2625

Stephenson); and a control unit (figure 2(30) of Stephenson) that has the printing unit form an image according to the image data from the external device that has been received via the interface (column 3, lines 44-53 of Stephenson).

Stephenson does not mention specifically that said image forming apparatus further comprises a power supplying unit for supplying power. However, said power supplying unit is inherent in the design of the device since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Stephenson does not disclose expressly that said power supplying unit supplies power to an external device transmitting image data; that the power is supplied to the external device via the interface; a judging unit for judging whether a charge is to be collected; a control unit for controlling power supplying by the power supplying unit and the image forming by the printing unit according to a judging result from the judging unit; and a charge collecting unit for collecting a charge for the image forming and a charge for an amount of power that has been supplied to the external device, wherein a charge for image forming is collected if image forming is performed without power being supplied to the external device, and a charge for the amount of power that has been supplied to the external device is

Art Unit: 2625

collected if power is supplied to the external device without image forming being performed by the image forming apparatus.

Amoni discloses that power is supplied to an external device (column 2, lines 32-39 of Amoni) via the interface (column 2, lines 36-39 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device and the image forming device. The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly a judging unit for judging whether a charge is to be collected; a control unit for controlling power supplying by the power supplying unit and the image forming by the printing unit according to a judging result from the judging unit; and a

Art Unit: 2625

charge collecting unit for collecting a charge for the image forming and a charge for an amount of power that has been supplied to the external device, wherein a charge for image forming is collected if image forming is performed without power being supplied to the external device, and a charge for the amount of power that has been supplied to the external device is collected if power is supplied to the external device without image forming being performed by the image forming apparatus.

Kawai discloses a judging unit (figure 1(8) and column 5, lines 54-55 of Kawai) for judging whether a charge is to be collected (column 5, lines 62-67 of Kawai); and a control unit (figure 1(7) of Kawai) for controlling the power supplying by a power supplying unit (figure 1(10) of Kawai) and image forming by a printing unit (figure 1(9) and column 5, lines 55-56 of Kawai) according to a judging result by the judging unit (column 5, lines 65-67 and column 6, lines 6-7 of Kawai). Since said power supplying unit operates to feed power to various components (column 6, lines 6-7 of Kawai), said power supplying unit is controlled by the control unit.

Kawai further discloses a charge collecting unit (figure 1 (8) and column 5, lines 54-55 of Kawai) for collecting a charge for the operation of the image forming apparatus (column 5, line 62 to column 6, line 7; and column 7, lines 27-29 of Kawai).

Art Unit: 2625

The charge collecting unit (figure 1(8) and column 5, lines 54-55 of Kawai) performs the function of a judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has given the proper fee to said money handling unit (column 5, lines 62-65 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not expressly disclose that the charge collecting unit and the judging unit are separate units; and that said charge collecting unit collects a charge for an amount of power that has been supplied to the external device, wherein a charge for image forming is collected if image forming is performed without power being

Art Unit: 2625

supplied to the external device, and a charge for the amount of power that has been supplied to the external device is collected if power is supplied to the external device without image forming being performed by the image forming apparatus.

Meese discloses a handling unit that collects a separate payment (column 2, lines 16-22 of Meese) solely for the supplying of electrical power (column 2, lines 9-15 of Meese). If no power is supplied, no charge is accrued for supplying power.

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from similar problem solving areas, namely the automated collecting of payments for providing services. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a separate handling unit for handling money so that the additional charge for the amount of electrical power that is supplied to an external device can be collected, as taught by Meese; and have said control unit taught by Kawai allow the separate purchasing of electrical power, if there is sufficient money paid to the handling unit. Thus, if there is no power supplied to the external device, then only a charge for image forming is collected if image forming is performed. Further, since the electrical power supply charge is separate from other provided

Art Unit: 2625

services, as taught by Meese, a charge for the amount of power that has been supplied to the external device is collected if power is supplied to the external device without image forming being performed by the image forming apparatus. The motivation for doing so would have been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai.

Stephenson in view of Amoni, Kawai and Meese does not expressly disclose that the charge collecting unit and the judging unit are separate units. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the charge collecting unit and the judging unit into one integrated unit since *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) has held that it is an obvious design choice to make components integral if doing so does not create any useful and novel result. Therefore, it would have been obvious to combine the charge collecting unit and the judging unit into one integrated unit, and thus obtain the invention as disclosed in claim 23.

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Kawai (US Patent 5,805,780), and Meese (US Patent 4,532,418).

Regarding claim 20: Stephenson does not mention specifically a power supply apparatus. However, some form of power supplying apparatus comprising a power supplying unit is inherent in the design of the device since both the camera (figure 1 of Stephenson) and the printer (figure 2 of Stephenson) require power. Otherwise, it is impossible for the camera or the printer to perform any meaningful operation.

Stephenson further discloses an external device (figure 1 of Stephenson) that transmits image data (column 3, lines 33-40 of Stephenson); and a printing unit (figure 4 of Stephenson) for forming an image according to the image data from said external device (column 4, line 61 to column 5, line 4 of Stephenson) that has been received via the connector (figure 3(20) and column 2, lines 40-49 of Stephenson).

Stephenson does not disclose expressly that said power supply unit generates power that is to be supplied to the external device; a connector for connecting the external device to the power supply apparatus, wherein the image data from the external device is received via said connector and the power

Art Unit: 2625

from the power supplying unit is supplied to the external device via said connector; and a charge collecting unit for collecting a charge for an amount of the power that has been supplied to the external device.

Amoni discloses that power is supplied to an external device (column 2, lines 32-39 of Amoni) via an interface (column 2, lines 36-39 of Amoni). A power supply unit is used to supply said power (figure 2(201); column 3, line 66 to column 4, line 11; and column 4, lines 51-54 of Amoni).

Amoni further discloses a connector (figure 7 of Amoni) for connecting the external device to the power supply apparatus (column 2, lines 32-39 of Amoni), wherein the image data from the external device is received via said connector and the power from the power supplying unit is supplied to the external device via said connector (column 2, lines 36-39 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device (figure 1 of Stephenson) and the image forming device (figure 2 of

Art Unit: 2625

Stephenson). The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly a charge collecting unit for collecting a charge for an amount of the power that has been supplied to the external device.

Kawai discloses a charge collecting unit (figure 1(8) and column 5, lines 54-55 of Kawai). Said charge collecting unit collects a charge for the operation of an image forming device (column 5, line 62 to column 6, line 7 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image and the power supply that is needed to deliver power to the necessary components required to form the image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a

Art Unit: 2625

customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly that the charge collected by said charge collecting unit is a charge for power that has been supplied to the external device.

Meese discloses a unit that collects a charge for an amount of power that has been supplied to an external device (column 1, lines 39-43 of Meese). Meese teaches that an external device, such as an electric car, is provided with power in exchange for the payment of a charge via a device (column 1, lines 39-43 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the control and supply of external devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the charge handling unit for the purpose of charging for the power supplied to the external device. The motivation for doing so would have been to be able to automatically collect payment for the amount of electricity that the customer requires to recharge the external device that is owned by said customer (column 1, lines 39-43 of Meese).

Art Unit: 2625

Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 20.

Regarding claim 21: Stephenson discloses a printing unit (figure 4 of Stephenson) for receiving image data from the external device (figure 1 of Stephenson) and forming an image (column 3, lines 41-48 of Stephenson). Stephenson further discloses a connection detecting step for detecting whether said external device has been connected to the image forming apparatus (figure 2 and column 4, lines 13-21 of Stephenson), which is supplied power by a power supplying apparatus. The fact that said image forming apparatus is supplied power by a power supplying apparatus is inherent since, without some form of power supplying apparatus to supply power, it would be impossible for the image forming apparatus to perform any meaningful function.

Stephenson discloses an image forming step where the printing unit forms an image (column 3, lines 25-32 of Stephenson) when a judging step has judged that the image is to be formed (column 2, lines 45-49 of Stephenson), said image being formed according to the image data (column 3, lines 33-36 of Stephenson).

Stephenson does not disclose expressly a connection detecting step for detecting whether the external device has been connected to the power supply apparatus; a judging step for judging one of that the power is to be supplied to the external device which has been connected to the power supply apparatus; a power supplying step for supplying the power to the external device when the judging step has judged that the power is to be supplied to the external device; and a charge collecting step for collecting a charge for an amount of the power that has been supplied by the power supply apparatus and a charge, separate from the charge for the amount of the power that has been supplied, for image forming by the printing unit.

Amoni discloses supplying power to an external device via a connector (figure 7; column 2, lines 36-39; and column 4, lines 51-60 of Amoni). The step of supplying power to the external device occurs after a connection step has detected that said connector is connected to the device. Power requirements are sent to the power supply from the external device (column 2, lines 40-44 of Amoni). The transmission of this data would inherently verify the fact that the external device is connected. Furthermore, since the power supply supplies power to the entire device by supplying all needed voltages (column 4, lines 51-54 of Amoni), said power supply would necessarily be

Art Unit: 2625

connected to the connector. When the switches and electronics have judged that the external device is connected and requires power, said power supply unit then supplies the needed power (column 2, lines 40-44 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of power between the external device (figure 1 of Stephenson) and the power supply. Thus the connecting step taught by Stephenson would therefore also, by detecting a connection between the external device and the image forming apparatus, be detecting that the external device has been connected to the power supply apparatus; and the judging step taught by Stephenson would be further judging when the power is to be supplied to the external device. The motivation for doing so would have been to provide the required power transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Art Unit: 2625

Stephenson in view of Amoni does not disclose expressly a charge collecting step for collecting a charge for an amount of the power that has been supplied by the power supply apparatus and a charge, separate from the charge for the amount of the power that has been supplied, for image forming by the printing unit.

Kawai discloses a charge collecting step for collecting a charge for image forming by a print unit (column 5, line 62 to column 6, line 7 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly a separate charge collected, which is a charge for power that has been supplied to the external device.

Art Unit: 2625

Meese discloses collecting a specific, separate charge for an amount of power that has been supplied to an external device (column 1, lines 39-43 of Meese). Meese teaches that an external device, such as an electric car, is provided with power in exchange for the payment of a charge via a device (column 1, lines 39-43 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the control and supply of external devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the charge handling unit for the purpose of separately charging for the power supplied to the external device. The motivation for doing so would have been to be able to automatically collect payment for the amount of electricity that the customer requires to recharge the external device that is owned by said customer (column 1, lines 39-43 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 21.

Regarding claim 22: Stephenson in view of Amoni does not disclose expressly that it is judged that money has been put for one of power supplying and image forming at the judging step.

Art Unit: 2625

Kawai discloses that it is judged that money has been put for image forming at the judging step (column 5, line 62 to column 6, line 7 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to judge whether or not money had been put for image forming. The motivation for doing so would have been to determine whether or not the proper fee had been collected for the image forming operation from a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly that it is judged that money has been put for power supplying at the judging step.

Meese discloses that it is judged that money has been put for power supplying (column 1, lines 44-47 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the control and supply of external devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to judge whether or not money had been put for

Art Unit: 2625

image forming. The motivation for doing so would have been to determine whether or not the proper fee had been collected for the supplied power from a customer (column 1, lines 44-47 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 22.

(10) Response to Argument

Regarding page 9, lines 5-24 of Appeal Brief:

Appellant argues that Stephenson (US Patent 5,757,388) does not teach that a printer initiates a preparatory operation involving the printer when a camera has been connected to the printer, but rather teaches a preparatory operation involving the camera display.

Examiner replies that on page 8, lines 4-14 of the final rejection, mailed 21 September 2005, Examiner specifically stated, "... a control unit (figure 2(30(portion)) of Stephenson) for controlling, in response to the first logical level signal output by the interface controller (column 3, lines 41-49 of Stephenson), said printing unit so as to prepare for image forming according to the image data from the external device (column 3, line 65 to column 4, line 6 of Stephenson). The portion of the printing electronics (figure 2(30) of

Art Unit: 2625

Stephenson) that performs the functions of the control unit is the control unit and the portion of said printing electronics that performs the functions of the detecting unit is the detecting unit." The portions of Stephenson cited therein specifically state that there is a print initialization (column 3, lines 49-51 of Stephenson) and that display modulation and printer data reception is initialized (column 4, lines 1-5 of Stephenson). So, clearly the printing unit is prepared by the control unit so as to prepare the printing unit for image forming according to the image data from the external device, as recited in claim 1. Furthermore, the printer electronics (figure 2(30) of Stephenson), a portion of which corresponds to the control unit of claim 1, clearly performs the control of the printing unit since the printer electronics are part of said printing unit (see figure 2 and figure 4 of Stephenson) and are used to optimize data transmission (column 3, lines 51-53 of Stephenson). While there may also be some preparatory operations relating to the camera, the claim language does not forbid this. Further, as set forth above, the preparatory operations involving the printing unit as specifically recited in claim 1 are clearly taught by Stephenson.

Regarding page 10, lines 1-11 of Appeal Brief:

Appellant argues that the printer operations are performed as a result of instructions input by an operator, and not according to output from an interface controller.

Examiner replies that the operator merely signals the start of the printing (column 3, lines 45-46 of Stephenson). In other words, the operator merely requests that printing be performed. Nowhere does Stephenson teach that the operator actually enters the commands for the preparatory operations performed by the printer. The preparatory operations of the printer are performed based on the outputs of the interface controller (figure 1(30(portion)) of Stephenson), as clearly set forth on column 3, lines 41-49 of Stephenson (as cited by Examiner in said final rejection and above). The latches automatically secure the printer to the camera, which is clearly a part of the preparatory operations. Furthermore, the printer's active socket signals the camera that the printer is in a condition to receive images and the printer electronics optimizes the data transmission on the printer side of the printer/camera combination. Again, all the actual preparatory operations of the printer are performed automatically by the printer itself. The operator simply signals that printing is desired.

Regarding page 10, line 12 to page 11, line 4:

Appellant argues, with respect to claim 2, that there is no specific disclosure of a power supplying unit in Stephenson, or that power to the printing unit is supplied by such specific power supplying unit according to whether the interface controller outputs a first logical level signal or the second logical level signal.

Examiner replies that, firstly, a power supplying unit is clearly inherent in Stephenson. Without some form of power supplying unit, any meaningful operation of the system of Stephenson is completely impossible. It would be abundantly clear to one of ordinary skill in the art at the time of the invention that a power supplying unit for supplying electric power to an electronic camera and an ink jet printer is an inherent feature of Stephenson. Furthermore, as stated on page 11, lines 2-7 of said final rejection, "[t]he power supply is controlled, and thus the printer is able to print or not print based on the readiness condition of the printer (column 3, lines 45-53 of Stephenson), which includes whether (first logical level) or not (second logical level) the printer and the camera are secured (column 2, lines 60-64 of Stephenson)." In other words, if the interface controller outputs that the printer is not ready for printing (first logical level), then the printer

Art Unit: 2625

is merely dormant. If the interface controller outputs that the printer is ready for printing, then printing can commence. An amount of power required when a printer is printing is clearly different from an amount of power required when a printer is not printing, and thus the power supplying to the printer is controlled. While the recitation with respect to the power supplying unit may not be explicitly set forth in Stephenson, one of ordinary skill in the art at the time of the invention would have readily recognized from the teachings of Stephenson that a power supplying unit and such a control of a power supplying unit as set forth in said final rejection are implicit in the teachings of Stephenson. Further, the actual recitation of this limitation in claim 2 is taught by Stephenson. Appellant's arguments with respect to ON/OFF states of the printer [page 11, lines 1-3 of present Appeal Brief] are not recited in claim 2. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding page 11, line 5 to page 12, line 10:

Appellant argues that Stephenson discloses an ink jet printer, and thus does not require any kind of fixing unit and that there is no reasonable basis for one of ordinary skill in the art to include a fixing unit. Appellant further argues that Examiner's use of Yokoyama (US Patent 5,694,226) is a result of impermissible hindsight and that Examiner has used Appellant present disclosure as a guide in reconstructing the presently claimed invention. Appellant additionally argues that the only apparent motivation of record for the proposed modification is to arrive at the claimed inventions.

Examiner replies that, firstly, the system taught by Stephenson in view of Amoni (US Patent 5,884,086) is directed to an integration of an electronic camera and a printer. While Stephenson is specifically applied to an ink jet printer in the particular embodiments thus set forth, one of ordinary skill in the art would easily have appreciated that the overall invention of Stephenson in view of Amoni can be applicable to all other types of printers, such as thermal printers, electrophotographic printers, and so on. By using a different type of printer, the one of ordinary skill is merely changing the type of output that is generated by the overall system of Stephenson in view of Amoni. The underlying principal of Stephenson in view of Amoni,

Art Unit: 2625

namely that of an electronic camera integrated with a printer that directly receives image data and provides hard copy outputs, remains unchanged by a mere selection of a different type of printer and printed output. Thus, relying upon Yokoyama to teach a fixing unit, along with the appropriate corresponding control functions for the control unit, naturally results from this simple selection of an alternate output format.

Additionally, Examiner's use of Yokoyama is in no way improper hindsight reconstruction. The limitations of claim 8 that Examiner states are taught by Yokoyama come from the reference itself. In said final rejection, Examiner clearly stated, "Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama)" [page 18, lines 12-15 of said final rejection] and "it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. Since said control unit controls the power supplied to the printer based on whether the interface controller outputs the first logical level signal or the second logical level signal, said interface controller would therefore likewise control said fixing unit" [page 18, lines 18-25 of said final rejection]. Furthermore, despite Appellant's assertions

Art Unit: 2625

to the contrary, the motivation/suggestion to combine the references is not derived from Appellant's disclosure, but rather was clearly set forth in said final rejection where Examiner stated, "[t]he motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama)" [page 18, lines 25-28 of said final rejection]. Thus, no improper hindsight has been employed.

Regarding page 12, line 11 to page 14, line 10:

Appellant argues that Meese (US Patent 4,532,418) is non-analogous art since Meese is directed a charging meter and method for electric vehicles, and thus one of ordinary skill in the art would not have recognized that such a feature could be applied in the context of an image processing system, such as a printer or electronic camera. Appellant further argues that the prior art does not suggest the desirability of the modification proposed by Examiner.

Examiner replies that, firstly, Meese is clearly analogous art. While Meese is not in the same field of endeavor as the present application, Meese does address the same problem solving area as the present application, namely the automated collecting

Art Unit: 2625

of payments for providing services. Further, Examiner notes that the limitations involving charge collection are also not within the image processing arts, but are only tangentially related to the present invention. In other words, the recited charge collection has nothing *per se* to do with image processing, but is merely an additional function of the claimed apparatus that can easily be applied to any apparatus in which fee-for-service is employed. Thus, whether or not Examiner can easily cite a reference that shows one of ordinary skill in the art would have applied the charge collection taught by Meese in the context of an image processing system [see page 13, lines 16-21 of present Appeal Brief], the issue at hand is whether or not Meese is actually analogous art. Since both the present invention and Meese are both concerned with collecting payment for the provision of electrical power, both the present invention and Meese clearly fall within the same problem solving area.

While the charge collection taught by Meese is done within the context of an electric vehicle and charging for the electricity supplied to said electric vehicle, the charge collection system itself simply takes place in a central processing unit (see figure 2 and column 8, lines 43-55 of Meese). Thus, the charge collection is simply applied in the

Art Unit: 2625

context of an electric vehicle. The charge collecting unit is itself simply a piece of circuitry and/or physically-embodied software executed by a CPU. Thus, the modification proposed by Examiner merely entails the addition of the relevant software routines or circuit elements which perform the functions of charge collection for an amount of electrical power provided. Whether that power is provided to an electric vehicle or an electronic camera makes no difference to the circuitry/software itself. The charge collection is simply being performed in a different environment. Furthermore, Meese teaches that other embodiments, and thus other environments, fall within the disclosure of Meese (column 8, lines 56-61 of Meese). In 1980, which is the year of the original filing of the chain of continuation applications which resulted in the Meese patent, computers and computer processors were not generally small enough to fit inside a device as small as an electronic camera. However, at the time of Appellant's invention, high-speed and high-memory computer processing within devices as small as electronic cameras had become commonplace. Thus, one of ordinary skill in the art at the time of the invention would clearly have recognized, due to the overall march of progress in the computing arts, that one could apply the old system taught

Art Unit: 2625

by Meese in the context of smaller systems, such as electronic cameras and printers.

Finally, in response to Appellant's argument that there is no motivation or suggestion to combine Meese with the other references, such a motivation has been clearly presented by Examiner. On page 31, lines 27-30 of said final rejection, Examiner states that "[t]he motivation for doing so would have been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese)."

Furthermore, an additional support for this motivation was set forth by Examiner in the Advisory Action mailed 26 January 2006. Therein, Examiner stated, "[o]ne of ordinary skill in the art at the time of the invention would not have had to look to Applicant's invention to figure out that one can collect a monetary charge for the provision of electricity to a customer, as anyone receiving a regular electricity bill at the time of the invention would easily attest. Thus, the motivation to combine Meese with the other prior art references would clearly be within the grasp of one of ordinary skill in the art at the time of the invention" [page 4, line 27 to page 5, line 2 of said Advisory Action].

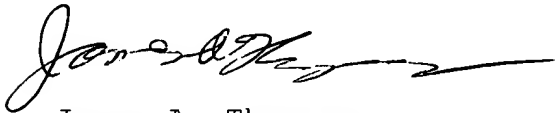
Art Unit: 2625

Regarding page 14, lines 12-23:

As set forth in the above rejections and above arguments, Examiner has clearly set forth a *prima facie* case of obviousness for all the appealed claims. Examiner therefore respectfully requests that the Board maintain Examiner's final rejections.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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